REMARKS

In the Claims and the Rejections under Section 112, second paragraph:

Claims 10-14 are amended to further clarify what was already clear. The section 112, second paragraph, rejections are moot. Claims 15-26 are newly added. Support for the amendments and the new claims can be found, for example, on page 3, lines 8 from the top of the page and line 2 from the bottom of the page; on page 4, in the paragraph labeled [0011]; on page 6, in the paragraph labeled [0016]; on page 11, in he paragraphs labeled [0033] and [0034]; in original claim 12; on page 12, last 5 lines of the paragraph labeled [0036]; and on page 13, in Example 2. No new matter is added.

The Rejections under Section 103

Claims 10-14 were rejected as allegedly unpatentable over Masanobu in view of Takada. Applicants submit a computer-translated copy of Masanobu.

Masanobu teaches a formulation of glycyrrhizin and absorption promoter. The absorption promoter is an agent that solubilizes the formulation. See paragraph [0008], line 4. The examples teach that the obtained solution, see paragraphs [0027]-[0037], are placed into a soft capsule that is then spray-pan coated with carboxy methyl ethyl cellulose or an azo polymer, see paragraphs [0038]-[0045].

Masanobu does not teach or suggest the combination of his/her formulation with a suppository base that comprises glyceride that forms a shaped core. Masanobu only teaches the use of his/her formulation as a solution. Nor does Masanobu teach or suggest the use of ethylcellulose as a film around the shaped core.

The secondary reference does not overcome the deficiencies of the primary reference. Takada does not teach or suggest the use of a suppository base that comprises glyceride to form a shaped core of any drug. Thus, there is no motivation to combine the references to arrive at the claimed invention.

Even if one of ordinary skill in the art would have combined the teachings of the two references, he/she would not have achieved the presently claimed invention. Neither reference teaches or suggests the shaped core of the current invention comprising glyceride. Neither reference teaches or suggests a shaped core for the delivery of glycyrrhizin in a colon-

targeted oral delivery system. One of skill in the art, based on these references, is only taught that glycyrrhizin has to be delivered in a solution to the colon for it to be sufficiently absorbed. See Masanobu paragraph [0009]. Thus, the invention is not obvious over the cited references.

Additionally, claims 12, 22 and 19, are even further distinguished from the cited references.

Takada teaches an ethylcellulose capsule which is disintegrated by the inner pressure of the large intestine. See column 3, lines 1-14. However, this capsule is different than the one subject of the noted claims. Takada teaches that an ethylcellulose capsule is formed by coating the inner or outer surface of a conventional gelatin capsule body and then dissolving the gelatin in warm water. See column 7, lines 59-64, and column 8, lines 15 to 18. Further, the reference teaches that a pore is made in the capsule to fill the drug into the capsule followed by closing the pore with ethylcellulose glue or by capping the opening with an ethylcellulose cap. See column 8, lines 18-35, and Examples 4 and 6. Thus, the capsule is formed prior to the introduction of the drug therein. Therefore, the final product has a capsule that either has a cap or a pore that is sealed by glue. Masanobu teaches the encapsulation of a solution which is first placed into a soft capsule before the application of a coating as discussion above. One of ordinary skill in the art based on the teachings or suggestions of the references could not have directly formed an ethylcellulose film over the solution of Masanobu. The capsules of claim 12, or the method of claim 22, wherein the coating film is formed by dipping the shaped core in a solution of ethylcellulose, or the capsules of claim 19, wherein the coating film of ethylcellulose enclosing said shaped core is continuous, i.e., not interrupted by a cap or a pore, are not taught or suggested by either of the references. Thus, noted claims 12, 22 and 19 are not obvious in light of the references because of these additional reasons as well.

Claims 10-13 were rejected as allegedly unpatentable over JP-3-255037 in view of Wilson and in further view of Sipos.

JP-3-255037 teaches that the enteric coating is dissolved. See abstract. Ethylcellulose does not dissolve, but is ruptured mechanically by internal pressure generated by the peristalsis of the intestine. See current specification and Takada.

Wilson teaches a drug delivery system that utilizes the physiological conditions, such as ph changes, lag-time, and degradation mechanism of intestinal bacteria, of the gastrointestinal track to provide colon-targeted release from a capsule body as admitted by the Office Action. Wilson does not teach a drug delivery system where the capsule is ruptured mechanically by internal pressure generated by the peristalsis of the intestine. Wilson does teach an ethylcellulose coated capsule, however, the capsule has a cap that dissolves in the digestive track to allow ejection of the swollen plug. Thus, Wilson does not teach or suggest a film that ruptures selectively in the colon by the internal pressure generated by the peristalsis of the intestine.

Sipos teaches an enteric coated digestive enzyme-containing composition that is capable of withstanding hours of exposure to gastric fluids. The present invention is directed at an ethylcellulose film enclosing a shaped core, wherein the film enclosing core ruptures selectively in the colon by the internal pressure generated by the peristalsis of the intestine, and not by exposure to gastric fluids.

None of the three references provide any teaching or suggestion to the present invention. Furthermore, each reference teaches a system that is very different form the others, thus one of skill in the art would not have the requisite motivation to combine their teachings to render the invention obvious.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned "**Version With Markings To Show Changes Made**".

The Commissioner is hereby authorized to charge any fees associated with this response or credit any overpayment to Deposit Account No. 13-3402.

Respectfully submitted,

Csaba Henter, Reg. No. 50,908
Anthony J. Zelano, Reg. No. 27,969
Attorneys for Applicants
MILLEN, WHITE, ZELANO & BRANIGAN, P.C.
Arlington Courthouse Plaza 1
2200 Clarendon Boulevard, Suite 1400
Arlington, VA 22201
Direct Dial: 703-812-5331
Facsimile: 703-243-6410
Email: henter@mwzb.com

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Version With Markings To Show Changes Made

In the Claims

The claims have been amended as follows:

10. (Amended) A device for colon-targeted oral delivery of glycyrrhizin comprising a ~~suppository-like~~ shaped core ~~article~~ containing an amount of glycyrrhizin, said shaped core ~~article~~ being made of a suppository base comprising glyceride that melts or liquefies at the body temperature, and a coating film of ethylcellulose enclosing said shaped core ~~article~~ and having ~~such~~ a film thickness ~~that~~ whereby when the device is transported through the digestive tract to the colon, the film enclosing the liquefied ~~suppository-like~~ core ruptures selectively in the colon by the internal pressure generated by the peristalsis of the intestine.

11. (Amended) The device according to claim 10 wherein said amount of glycyrrhizin is ~~sufficient to overwhelm the rate of~~ in excess of the amount needed for compensating for the hydrolysis thereof by the intestinal flora.

12. (Amended) The device according to claim 10 wherein said coating film is formed by dipping the shaped core ~~article~~ in a solution of ethylcellulose.

13. (Amended) The device according to claim ~~13~~ 12, wherein said shaped core ~~article~~ is dusted with a ~~dusting~~ powder to prevent from sticking before dipping.

14. (Amended) The device according to claim 10 wherein said shaped core ~~article~~ further contains an ~~adsorption~~ absorption promoter for glycyrrhizin.

Claims 15-26 have been newly added.